

AMENDMENT UNDER 37 C.F.R. § 1.111
U. S. Application No. 10/822,791

REMARKS

Claims 1-11 are all the claims pending in the application.

Claims 1-11 are rejected under 35 U.S.C. § 102(e) as being anticipated by Akamatsu et al. (US 2004/0025584).

The present invention relates to a heat sensitive flow meter and a fuel controller using the same, in which a flow rate signal outputted from a flow rate detection unit and a filter signal outputted from a filter unit are compared with each other to select the signal having the larger amplitude as a new flow rate signal.

Akamatsu relates to a heating resistor type air flow rate measuring apparatus for measuring the air flow rate in a pulsated flow including a backward flow.

Applicant submits that Akamatsu fails to teach or suggest all of the limitations of claim 1 of the present invention. Claim 1 recites a selection means for comparing the flow rate signal outputted from the flow rate detection means and a filter signal outputted from the filter means to select the signal having a higher voltage from the flow rate signal and the filter signal as a new flow rate signal. The Examiner asserts that claims 17 and 18 on page 10 of Akamatsu disclose these features of claim 1 of the present invention. Applicant respectfully disagrees.

Claims 17 and 18 of Akamatsu each disclose a signal comparing means for determining the direction of the air flow in the air passage by appropriate detection and comparison of forward and the backward flow detection signals. In other words, Akamatsu discloses comparing distinct measured signals. By contrast, claim 1 of the present application recites comparing the flow rate signal outputted from the flow rate detection means and a filter signal outputted from a filter. Neither the forward or the backward flow detection signals of Akamatsu

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corresponds to the filter signal outputted from the filter means claimed in claim 1. The forward and backward flow detection signals are detected or measured signals, not filtered (processed) signals. Thus, claim 1 is not anticipated by Akamatsu.

Also, Applicant submits that the portion of Akamatsu (paragraphs [0003] and [0004]) cited by the Examiner as allegedly corresponding to the claimed filter simply does include the alleged disclosure. Claim 1 recites a filter for inputting a flow rate signal outputted from a flow rate detection means installed within the ~~suction~~ pipe and subjecting the flow rate signal to filter processing. Neither of the cited paragraphs discloses any type of filter. Instead, the cited paragraphs describe selecting either the forward or backward flow signal and estimating an average output of the air flow rate. This is not a filter function. Hence, claim 1 is not anticipated by Akamatsu for this reason as well.

Claims 2-4 are allowable due to their dependence from claim 1.

Also, claim 11 is not anticipated by Akamatsu for reasons analogous to those for claim 1.

With further regard to claim 2, Applicant submits that Akamatsu does not disclose all of the limitations of the claim. In claim 2 the filter is comprised of a low-pass filter, and the filter processing is a process for delaying the flow rate signal with a predetermined time constant. The Examiner contends that paragraph [0043] discloses these features of the claim. Paragraph [0043] is a brief description of FIG. 11 (FIGS. 11A and 11B), which illustrates output signals of individual heating resistors at individual throttle angles when using an output signal alternation method in a case of using heating resistors having response delay characteristics. FIGS. 11A and 11B are described in paragraph [0006] of Akamatsu, which discloses that if the heating resistor has a thermal response delay, the detection of the backward flow is delayed. Thus, a

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thermodynamic reaction delay is described. Thus, neither FIGS. 11A and 11B, nor their description in the specification, teach or suggest a signal processing technique of creating a delayed flow rate signal with a predetermined time constant. Therefore, claim 2 is not anticipated by Akamatsu for this additional reason.

Claim 3 of the present application recites that the filter is comprised of a high-pass filter, and the filter processing advances the flow rate signal with a predetermined time constant. With regard to claim 3, the Examiner points to FIG. 10 of Akamatsu. However, as described in paragraph [0004] of Akamatsu, FIG. 10 illustrates that the amplitude of the pulsation in the air flow rate increases as the throttle valve opens, and when the throttle valve reaches a certain predetermined angle (A), the pulsation amplitude includes the backward flow component. Thus, the curve illustrated in FIG. 10 increases when the throttle aperture reaches the angle A. There is no teaching or suggestion of the curve illustrated in FIG. 10 being related to a high-pass filter, i.e., these are simply measured values. Furthermore, there is no teaching or suggestion of filter processing for advancing the flow rate signal with a predetermined time constant. Therefore, claim 3 is not anticipated by Akamatsu for this reason also.

The Examiner also refers to FIG. 10 of Akamatsu as allegedly disclosing the features of claim 4, which recites wherein the filter processing executed by the filter arithmetically derives a value lower than a mean value of the flow rate signal by a predetermined value to output a resultant value. However, as described above in relation to claim 3, FIG. 10 and its associated description in the specification of Akamatsu fails to teach or suggest filtering or filter processing. Thus, claim 4 is allowable for this reason also.

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Applicant submits that claims 5-8 are not anticipated by Akamatsu, for reasons analogous to those for claims 1-4.

With regard to claim 9, Applicant has the following comments in traversal of the rejection. Claim 9 recites a step of receiving data on a throttle aperture of the internal combustion engine and data on the number of revolutions of the internal combustion engine to judge whether or not the throttle aperture is equal to or larger than a set value for the throttle aperture previously set in correspondence to the number of revolutions. The Examiner alleges that paragraphs [0003] and [0004] of Akamatsu disclose these features of the claim. Applicant respectfully disagrees. As disclosed in paragraph [0004] of the reference, the number of rotations of the engine is maintained constant, while the throttle valve gradually opens. When the throttle valve angle reaches a certain angle, the pulsation amplitude contains the backward flow component. In other words, it is simply the angle of the throttle valve that determines when the backward flow component is included in the pulsation amplitude. There is no disclosure in Akamatsu of a set value for the throttle aperture previously set in correspondence to the number of revolutions. Moreover, since the number of rotations of the engine is maintained constant in Akamatsu, it would not make sense to have a set value for the throttle aperture previously set in correspondence to the number of revolutions. Thus, claim 9 is not anticipated by Akamatsu.

Also recited in claim 9 is a selection step of, when the throttle aperture is equal to or larger than the set value, judging whether or not a value of a flow rate signal outputted from the flow rate detection means installed within the pipe is equal to or smaller than a set value for a flow rate signal previously set, to select the set value as a new flow rate signal when the value of the flow rate signal is equal to or smaller than the set value. The Examiner asserts that

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Akamatsu, at page 10 in claims 17 and 18, discloses these features of claim 9 of the present invention. Applicant disagrees. Claims 17 and 18 of Akamatsu disclose selecting one of the forward and the backward flow detection signals, based on a determination of the direction of the air flow in the air passage. Akamatsu further discloses adding/inverting components of the backward and forward flow components to forward and backward flow detections signals, respectively. However, neither of these disclosures, nor the remainder of the recitations of claims 17 and 18 of Akamatsu correspond to the feature of claim 9 of the present invention. Hence, claim 9 is not anticipated by Akamatsu for this reason also.

Applicant submits that claim 10 is allowable for reasons analogous to those for claim 9.

Additionally, claim 6 is amended to change its dependency to claim 5, claim 11 is amended to correct a typographical error, and the claims have been generally revised to better capture the true scope of the invention.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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